

WHAT IS CLAIMED IS:

1. A method of color matching images generated by multiple projectors of a tiled projection display system, each projector having a processing unit and the system
- 5 having a main controller, comprising the steps of:
- storing chromaticity data in the processing unit of each projector, representing at least the colors of images generated by that projector;
- communicating each projector's chromaticity data to
- 10 the main controller;
- storing standard color gamut data at the main controller, representing a standard color gamut to which the projectors are to be matched;
- calculating, at the main controller, color
- 15 correction data for each projector, based on that projector's chromaticity data and on the standard color gamut data;
- communicating each projector's color correction data from the main controller to that projector; and
- 20 calculating pixel values, using the processing system of each projector, on the basis of that projector's color correction data.
2. The method of Claim 1, wherein the chromaticity
- 25 data further represents luminance of images generated by the projector.

3. The method of Claim 1, further comprising the steps of: storing projector relative luminance data in the processing unit of each projector, representing the relative luminance of colors generated by that projector;
5 and of storing standard relative luminance data at the main controller, representing a standard relative luminance of colors to which the projectors are to be matched; and wherein the communicating step is performed by also communicating this projector relative luminance
10 data; and the calculating step is performed such that the color correction data is further based on the projector relative luminance data.

4. The method of Claim 3, wherein the projectors
15 each use a color wheel, and wherein relative luminance data represents effective light times of each color.

5. The method of Claim 1, further comprising the step of storing additional data representing the
20 luminance of a light source of each projector, and wherein the communicating step is performed by also communicating this luminance data, and further comprising the step of adjusting the gain of the color correction data based on the luminance data.

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6. The method of Claim 1, wherein the step of communicating each projector's chromaticity data is performed by communicating the data in the form of a transfer function matrix.

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7. The method of Claim 1, wherein the chromaticity data is calculated from primary and white color values.

8. The method of Claim 1, wherein the main
5 controller is a processing system in data communication with each projector.

9. The method of Claim 1, wherein the main
controller is also one of the projector processing units.

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10. The method of Claim 1, wherein each projector generates images using a spatial light modulator.

11. The method of Claim 1, wherein the color
15 correction data is derived from primary and secondary colors.

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12. A projector for a tiled projection display system, the display system having a main controller, comprising:

5 a set of projectors, each projector operable to generate a portion of an image, and each projector having a light path along at least the following elements: a light source, a color wheel, a spatial light modulator, and a projection lens, each projector further having a processing unit for processing pixel values for image
10 data to be delivered to the spatial light modulator; and

wherein each processing unit stores chromaticity data associated with that processor; and

wherein each processor is operable to deliver the chromaticity data to the main controller, to receive
15 color correction data from the main controller, and to calculate pixel values based on the color correction data.

13. The projector of Claim 12, wherein the spatial
20 light modulator is a digital micro mirror device.

14. The projector of Claim 12, wherein the chromaticity data represents both color and luminance of images generated by the spatial light modulator.

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15. The projector of Claim 12, wherein the processing unit further stores and delivers relative luminance data representing relative luminance of colors generated by the projector.

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16. The projector of Claim 15, wherein the relative luminance data represents effective light times of the color wheel.

5 17. The projector of Claim 12, wherein the processing unit further stores and delivers luminance data representing luminance characteristics of the light source.

10 18. The projector of Claim 12, wherein the color correction data is derived from primary and secondary colors.

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19. A projector for a tiled projection display system, the display system having a main controller, comprising:

5 a set of projectors, each projector operable to generate a portion of an image, and each projector having a light path along at least the following elements: a light source, two or more spatial light modulators, and a projection lens, each projector further having a processing unit for processing pixel values for image
10 data to be delivered to the spatial light modulator; and

wherein each processing unit stores chromaticity data associated with that processor; and

wherein each processor is operable to deliver the chromaticity data to the main controller, to receive
15 color correction data from the main controller, and to calculate pixel values based on the color correction data.

20. The projector of Claim 19, wherein the spatial
20 light modulator is a digital micro mirror device.

21. The projector of Claim 19, wherein the chromaticity data represents both color and luminance of images generated by the spatial light modulator.

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22. The projector of Claim 19, wherein the processing unit further stores and delivers luminance data representing luminance characteristics of the light source.

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PATENT APPLICATION

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23. The projector of Claim 19, wherein the color correction data is derived from primary and secondary colors.

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